DNA Agarose Gel Electrophoresis:

Materials Needed:

150mL 0.5X TAE Buffer
50mL 1X TAE Buffer
Horizons 58 Gel Electrophoresis Machine
Voltage Machine
5µL CyberSafe™
Balance
250mL Erlenmeyer Flask
Microwave
Parafilm
Graduated Cylinder
Pipets

Protocol (estimated time 1.5 hours):

1. Obtain a clean 250mL Erlenmeyer flask and add 500mg of agarose and 50mL 1X TAE buffer for a 1% agarose gel.
    a. Refer to Table 1 for percentage gel needed for optimum resolution

Table 1: Agarose Gel Percentage for Optimum Resolution		
Percent Agarose	mg agarose/100ml of 1X TAE Buffer	Optimum Resolution (kb)
0.5%	500mg	30 - 1.0kb
0.7%	700mg	12 - 0.8kb
1.0%	1000mg	10 - 0.5kb
1.2%	1200mg	7 - 0.4kb
1.5%	1500mg	3 - 0.2kb

2. Heat agarose in microwave for approximately 1 minute or until the solution starts to boil. Check to ensure that all the agarose has dissolved.
3. Swirl the Erlenmeyer flask under running cold water until the flask becomes warm to the touch.
4. Add 5µL of Cybersafe™ to the solution and swirl to ensure the Cybersafe™ has fully diffused.
5. Construct the gel casting station of the Horizons 58 Gel machine and pour in the agarose.
6. Remove all bubbles by using the comb or pipet tips.

    a. Add the comb to the black side of the machine (DNA will run from black to red).
    b. Let the gel sit for 20 minutes to solidify.
7. Remove the sides of the casting station and pour enough 0.5X TAE buffer so that the gel is completely covered on top. Remove the comb to expose the wells.
8. Obtain a small piece of parafilm and pipet 1µL of 6X DNA loading dye onto the parafilm film for every sample you need to run. Pipet 6µL of sample into the 1µL drops of loading dye and then pipet up all 7µL of sample and loading dye into the pipet and inject sample into well.
    a. Repeat for as many samples as you have (leaving one well open for latter).
9. Add 5µL of a DNA ladder to a well and close the machine lid.
10. Attach cables and turn on the voltage machine.
    a. Set machine to run at 100 Volts for 30-45 minutes (the time is dependant on the desired band separation).
11. After the 30-45 minutes, turn off the machine, unplug wires, and remove the gel.
12. View the bands on an AlphaImager™ or other imaging machine.